

NOV 29 1985

Docket No. 50-289

MEMORANDUM FOR: Thomas E. Murley, Regional Administrator
Region I

THRU: Richard W. Starostecki, Director
Division of Reactor Projects

FROM: William F. Kane, Director
TMI-1 Restart Staff

SUBJECT: TMI-1 STATUS REPORT FOR THE PERIOD NOVEMBER 22-29, 1985

The enclosure is the eighth of a series of weekly status reports of the TMI-1 Restart Staff. These reports are intended to provide NRC management and the public with highlights from an NRC regulatory perspective of the TMI-1 restart activities for the previous week. Subsequent inspection reports will address most of these topics in more detail.

The enclosed report covers the period from 8:00 a.m., November 22 to 8:00 a.m., November 29, 1985. We will continue to issue weekly status reports for the duration of TMI-1 Restart Staff activities. An overview of the chronological status of the restart effort is shown on the figure which is attached to this report.

original signed by

William F. Kane, Director
TMI-1 Restart Staff

Enclosure:
As stated

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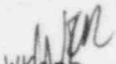
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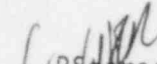
TMIRS:RI

DRP:RI

DHaverkamp
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WKane
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ENCLOSURE

TMI-1 STATUS REPORT FOR THE PERIOD NOVEMBER 22-29, 1985

1. Plant Status

As of 8:00 a.m. on November 29, 1985, TMI-1 was at 75% power.

2. Test Program Status

The licensee's planned test program and current status for restart of TMI-1 are shown on the attached Figure 1. As of 1:30 a.m. on November 23, 1985, the licensee completed the required 30 days of operation at the 48% power testing plateau. After release was granted by the Region I Administrator from the 48% hold point, the licensee slowly increased power until reaching the 75% testing plateau at 5:00 p.m. on November 23, 1985. During this power escalation, stops were made at 60% and 65% of rated power for integrated control system (ICS) tuning and turbine control valve testing.

Initial testing at the 75% power plateau included routine steady-state tests (facility performance data review, heat balance calculation, and ICS tuning) on November 24 and two automatic reductions to 60% of rated power (runback) tests on November 25, 1985. The first runback test was initiated by an indicated (not actual) asymmetric control rod position and the second by the planned stopping of one of two main feedwater pumps. The tests appear to be successful based on the licensee's preliminary review of data. The licensee still plans to remain at 75% power until late December 1985.

3. Facility Operations Summary

Steady-state operation at 48% power continued until power was increased to 75% on November 23, 1985. Except during the runback tests on November 25, 1985, the plant operated at the 75% power testing plateau for the remainder of the period.

4. Items of Special Interest

NRC Notifications

As has been the case in prior periods, the licensee determined that there were no events that required notification of NRC. There are, however, two items of interest and they are discussed below.

Maximum Power Operating Limitation

During the power escalation program, the licensee has trended steam generator steady-state water levels versus reactor power and their preliminary conclusion is that the plant will not be able to achieve 100% of rated power. The nuclear steam system supplier, Babcock and Wilcox (B&W), has provided a high steam generator level limit of 82% on the

operating range (0-100%) to assure proper feedwater heating in the downcomer region of the steam generators. This is an operational limit and not a technical specification limit. The current limit on steam generator level correlates to a projected reactor power of approximately 82%. B&W plans to perform additional analyses which may result in raising the steam generator high level limit to about 92% as has been done for other B&W plants. This limit would correlate to a reactor power for TMI-1 of about 90% of rated power.

The rise of steady-state steam generator level with time for a given reactor power is not unique to TMI-1 since other B&W facilities are similarly limited in power output. The problem is apparently due to fouling of heat transfer surfaces and/or flow passages in the steam generator with time. Consequently, a higher steam generator level is needed to transfer the same amount of heat. Power escalation above 75% power is not expected to occur until the end of December 1985. The licensee is working with B&W and other licensees to develop a generic solution to the problem.

Reactor Coolant System Leakage Measurements

Throughout the past two months of the testing program, the licensee and NRC have been monitoring the results of periodic reactor coolant system (RCS) leakage measurements. The calculated values of unidentified RCS leakage through all possible leakage paths and the specific measurements of RCS leakage through the steam generator tubes have remained very low and much below applicable regulatory limits. The unidentified RCS leakage remains at approximately -0.15 to -0.25 gallons per minute (gpm) after applying certain correction factors as permitted by the Technical Specifications. Without these correction factors, the unidentified leakage is about 0 to 0.1 gpm as compared with the limit of one gpm. The leakage through steam generator tubes has been about 0.001 to 0.003 gpm (or 0.06 to 0.18 gallons per hour) in recent weeks. Trending results for both unidentified RCS leakage and steam generator tube leakage indicate no increase in leakage after the recent escalation to 75% of rated power. The TMI-1 Restart Staff will continue to monitor these parameters closely as the testing program progresses.

5. NRC Thermoluminescent Dosimeter (TLD) Special Monitoring Program for TMI

The special NRC TLDs for TMI for the period November 13 - 25, 1985, were processed at the Region I TLD laboratory. The TLD readings are provided in the attached Table A. The monitoring results indicate that the radiation levels at these monitoring locations remain at natural background levels. These readings can be expected to vary slightly from period to period due to variations in natural background, independent of releases from the plants.

6. TMI-1 Restart Staff Status During the Period

The TMI-1 Restart Staff continued 16-hour shift coverage until 1:30 a.m. on November 23, 1985, when continuous coverage was initiated of the escalation to the 75% power testing plateau. At 5:30 p.m. on that day, the staff began 12-hour shift coverage of steady-state plant operation. This coverage was augmented by region-based inspectors during the turbine runback testing. The shifts were manned by NRC personnel from Region I and by reactor operator examiners from EG&G Idaho, Inc., an NRC contractor. A Region I project engineer, a reactor engineer, and two startup inspectors were on site during portions of the period to augment the resident inspection staff.

The staff's inspection plan for this period covered the primary functional areas of operations, maintenance, surveillance, and restart testing with the division of responsibility as noted in previous status reports. The staff continued to evaluate the performance of licensee personnel and the plant to determine whether the licensee should be permitted to proceed beyond the hold point at 48% power. At 1:54 a.m. on November 23, the licensee was released from that hold point. The decision was based in part on a recommendation from the TMI-1 Restart Staff as documented in a memorandum dated November 26, 1985, from W. F. Kane to T. E. Murley.

Contact from the press and public was minimal throughout the period. We continued to maintain daily contact with representatives of the Commonwealth of Pennsylvania during this period.

The TMI-1 Restart Staff issued four daily highlight reports for the Executive Director for Operations on November 22, 25, 26, and 27, 1985, regarding the escalation to 75% of rated power, preliminary results of initial tests at that plateau, and the steam generator operating level limitations. The seventh weekly status report for the period November 15 - 22, 1985, was issued on November 22, 1985.

7. TMI-1 Restart Staff Composition During Period

The TMI-1 Restart Staff was comprised of the following personnel during the period:

- W. F. Kane, TMI-1 Restart Director
- R. J. Conte, TMI-1 Restart Manager
- D. R. Haverkamp, Technical Assistant
- F. I. Young, Resident Inspector, TMI-1
- W. H. Baunack, Project Engineer
- R. J. Urban, Reactor Engineer
- N. J. Blumberg, Startup Inspector
- P. C. Wen, Startup Inspector
- M. A. King, Shift Inspector, EG&G Idaho, Inc.
- T. L. Morgan, Shift Inspector, EG&G Idaho, Inc.
- C. P. Hix, Secretary
- L. M. Prough, Secretary

TABLE A
TMI SPECIAL TLD MONITORING RESULTS

Station	Distance (miles)	Direction	Baseline mR/day (Mean \pm s.d.)	Field Exposure 11/13/85-11/25/85 mR/day (Mean \pm s.d.; total uncertainty)
		Control #1	-	0.16 \pm 0.01; 0.02
		Control #2	-	0.12 \pm 0.00; 0.02
2	3.9	101	0.19 \pm 0.02	0.20 \pm 0.00; 0.03
3	2.7	109	0.16 \pm 0.02	0.18 \pm 0.03; 0.03
4	1.8	163	0.16 \pm 0.02	0.18 \pm 0.01; 0.03
5	2.2	161	0.18 \pm 0.02	0.17 \pm 0.01; 0.03
6	1.0	150	0.17 \pm 0.03	0.18 \pm 0.01; 0.03
7	0.6	136	0.17 \pm 0.02	0.16 \pm 0.02; 0.02
8	0.4	83	0.16 \pm 0.03	0.16 \pm 0.01; 0.02
9	0.5	60	0.16 \pm 0.02	0.17 \pm 0.01; 0.03
10	1.7	1	0.14 \pm 0.02	0.17 \pm 0.00; 0.03
11	0.9	25	0.16 \pm 0.01	0.16 \pm 0.00; 0.02
12	2.8	46	0.16 \pm 0.02	0.17 \pm 0.00; 0.03
14	2.5	358	0.14 \pm 0.02	0.17 \pm 0.01; 0.03
16	3.1	0	0.14 \pm 0.02	0.16 \pm 0.00; 0.02
18	3.5	349	0.17 \pm 0.03	0.16 \pm 0.01; 0.02
19	3.2	343	0.17 \pm 0.02	0.19 \pm 0.02; 0.03
20	5.0	318	0.16 \pm 0.01	0.16 \pm 0.01; 0.02
21	1.3	348	0.13 \pm 0.01	0.15 \pm 0.00; 0.02
22	3.1	17	0.17 \pm 0.02	0.18 \pm 0.01; 0.03
23	3.8	64	0.13 \pm 0.01	0.17 \pm 0.01; 0.03
24	3.6	44	0.17 \pm 0.01	0.18 \pm 0.00; 0.03
34	2.3	267	0.17 \pm 0.01	0.20 \pm 0.02; 0.02
35	1.8	299	0.17 \pm 0.01	0.18 \pm 0.01; 0.03
36	1.2	267	0.12 \pm 0.02	0.14 \pm 0.00; 0.02
37	1.4	256	0.14 \pm 0.01	0.15 \pm 0.00; 0.02
38	1.9	225	0.18 \pm 0.02	0.19 \pm 0.01; 0.03
39	2.1	200	0.13 \pm 0.01	0.16 \pm 0.01; 0.02
40	2.5	204	0.16 \pm 0.02	0.16 \pm 0.01; 0.02
46	3.0	177	0.14 \pm 0.02	0.16 \pm 0.00; 0.02
50	4.9	145	0.14 \pm 0.04	0.18 \pm 0.01; 0.03

Abbreviations:

mR = millirem

s.d. = standard deviation

REMARKS:

Twenty-nine environmental (offsite) locations are monitored on a two-week exchange cycle using special TLDs for the TMI site. Two control TLDs were stored in a 1/2" thick lead shield at the NRC TMI Office for two weeks. The baseline data for the environmental monitoring were calculated using the past ten quarters of monitoring results. All monitoring results indicate normal natural background radiation levels.